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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,482	10/31/2005	Ragnar Bendiksen	PN0299	6784
36335 7590 04/05/2010 GE HEALTHCARE, INC. IP DEPARTMENT 101 CARNEGIE CENTER PRINCETON, NJ 08540-6231				
EXAMINER				
CHENG, JACQUELINE				
ART UNIT		PAPER NUMBER		
3768				
MAIL DATE		DELIVERY MODE		
04/05/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/536,482

Applicant(s)

BENDIKSEN ET AL.

Examiner

JACQUELINE CHENG

Art Unit

3768

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 7 and 8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 7 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SI/226)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 3/23/10

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 23, 2010 has been entered.

Response to Arguments

2. Applicant's arguments filed March 23, 2010 have been fully considered but they are not persuasive. The examiner respectfully disagrees with the applicant's arguments of that Krishnan (6,340,348 B1) does not teach the invention as claimed. Krishnan teaches a method wherein the imaging pulse can be triggered at any fixed point of a physiological signal. Although Krishnan specifically teaches that the imaging pulse is triggered at an R-wave, Krishnan also teaches the destruction pulse being triggered by the R-wave and that the imaging pulse to be triggered by a point in the physiological signal different from the point of the physiological signal used for the destruction pulse (col. 2 line 46-50). Therefore Krishnan is not teaching away from triggering the imaging pulse at other ECG wave points besides the R-wave. Since Krishnan teaches that any fixed point of the physiological signal can be used it would be obvious to use a well known fixed point such as at or around the T-wave. Furthermore imaging in particular at the T-wave of a heart cycle is something well known in the art (see for example US 5,735,281 to Rafter which shows

in fig. 2 initiating low energy imaging pulses at or around the T-wave of an ECG of the heart, and US 6,302,846 B1 to Gardner which also teaches in col. 3 line 3-10 that triggering of a non-destructive mode (imaging) can be done at any selected part of the heart cycle, and in particular teaches choosing to trigger at the end of systole (which is at or around the T-wave)). Triggering at or around the T-wave is desirable for the purpose of imaging at a maximal contraction point which allows more of the heart to be in the image (page 4 line 6-9 of the applicant's specification).

3. In particular the applicant's added claim limitations do not overcome Krishnan as Krishnan teaches that the imaging pulse can be triggered at a different point (such as the T-wave) in the cardiac cycle, in the same cardiac cycle as the triggered destruction pulse (at the T-wave where the sequence of high energy pulses end). Therefore it is still believed that the previous rejection as being unpatentable over Krishnan still stands.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 1, 7, and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Krishnan (US 6,340,348 B1). Krishnan discloses a method and apparatus for ultrasound contrast agent imaging which can be used for real-time perfusion of blood in cardiac tissue (myocardial perfusion) (abstract). Krishnan comprises triggering a series of high-energy ultrasound pulses to destroy a contrast agent which has been administered to the subject (col. 2 line 32-37). The triggering can be based upon a physiological signal such as an R-wave of the ECG of the heart (col. 6 line 27-33, col. 7 line 55-58). After the destruction of the contrast agent a series of low energy imaging pulses are then triggered at a different point of the physiological signal (col. 2 line 46-50) which can be in the same cardiac cycle or a different cardiac cycle of the high-energy ultrasound pulses (col. 6 line 52-55). Krishnan discloses that the imaging pulses can be triggered any fixed point of a physiological signal but does not explicitly disclose at what point of the physiological signal. It would therefore be obvious to trigger the imaging pulse at any well known point of the physiological signal such as the T-wave of the ECG of the heart.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACQUELINE CHENG whose telephone number is (571)272-5596. The examiner can normally be reached on M-F 10:00-6:30.

8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jacqueline Cheng/
Examiner, Art Unit 3768